Postel (home)

Network Working Group
Request for Comments: 943

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ISI

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Obsoletes RFCs: 923, 900, 870,
820, 790, 776, 770, 762, 758,
755, 750, 739, 604, 503, 433, 349
Obsoletes IENs: 127, 117, 93

# ASSIGNED NUMBERS

## Status of this Memo

This memo is an official status report on the numbers used in protocols in the ARPA-Internet community. Distribution of this memo is unlimited.

## Introduction

This Network Working Group Request for Comments documents the currently assigned values from several series of numbers used in network protocol implementations. This RFC will be updated periodically, and in any case current information can be obtained from Joyce Reynolds. The assignment of numbers is also handled by Joyce. If you are developing a protocol or application that will require the use of a link, socket, port, protocol, network number, etc., please contact Joyce to receive a number assignment.

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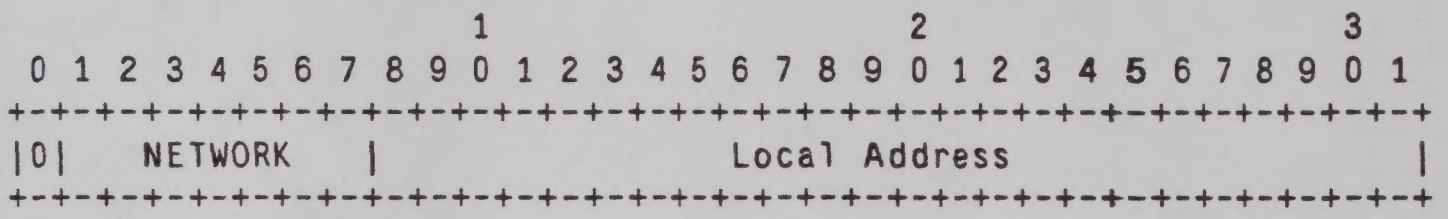
Most of the protocols mentioned here are documented in the RFC series of notes. The more prominent and more generally used are documented in the "Internet Protocol Transition Workbook" [35] or in the old "ARPANET Protocol Handbook" [36] prepared by the NIC. Some of the items listed are undocumented. Further information on protocols can be found in the memo "Official ARPA-Internet Protocols" [92].

In all cases the name and mailbox of the responsible individual is indicated. In the lists that follow, a bracketed entry, e.g., [nn,iii], at the right hand margin of the page indicates a reference for the listed protocol, where the number ("nn") cites the document and the letters ("iii") cites the person. Whenever possible, letters are a NIC Ident as used in the WHOIS service.

# ASSIGNED NETWORK NUMBERS

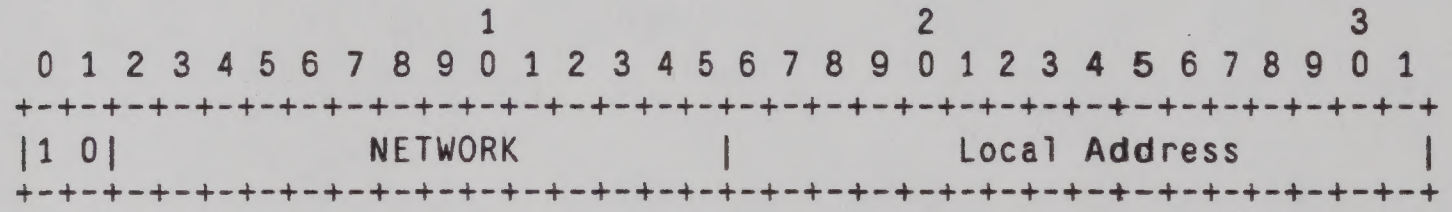
The network numbers listed here are used as internet addresses by the Internet Protocol (IP) [35,80]. The IP uses a 32-bit address field and divides that address into a network part and a "rest" or local address part. The division takes 3 forms or classes.

The first type of address, or class A, has a 7-bit network number and a 24-bit local address. The highest-order bit is set to 0. This allows 128 class A networks.



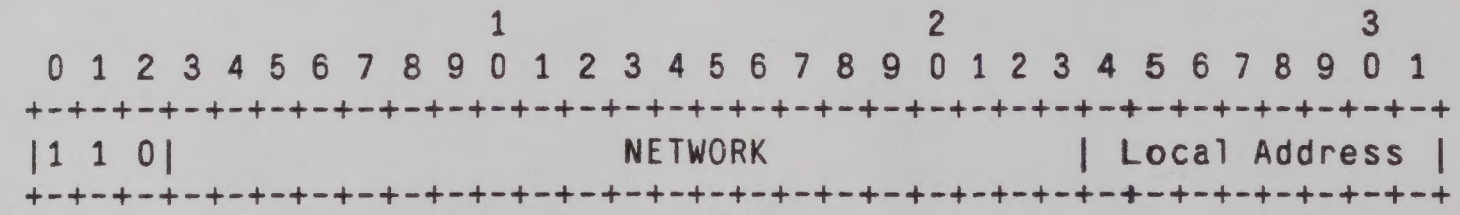

Class A Address

The second type of address, class B, has a 14-bit network number and a 16-bit local address. The two highest-order bits are set to 1-0. This allows 16,384 class B networks.




Class B Address

The third type of address, class C, has a 21-bit network number and a 8-bit local address. The three highest-order bits are set to 1-1-0. This allows 2,097,152 class C networks.




Class C Address

Note: No addresses are allowed with the three highest-order bits set to 1-1-1. These addresses (sometimes called "class D") are reserved.

One commonly used notation for internet host addresses divides the 32-bit address into four 8-bit fields and specifies the value of each field as a decimal number with the fields separated by periods. This is called the "dotted decimal" notation. For example, the internet address of USC-ISIF.ARPA in dotted decimal is 010.002.000.052, or 10.2.0.52.

The dotted decimal notation will be used in the listing of assigned network numbers. The class A networks will have nnn.rrr.rrr.rrr, the class B networks will have nnn.nnn.rrr.rrr, and the class C networks will have nnn.nnn.nnn.rrr, where nnn represents part or all of a network number and rrr represents part or all of a local address.

There are four catagories of users of Internet Addresses: Research, Defense, Government (Non-Defense), and Commercial. To reflect the allocation of network identifiers among the categories, a one-character code is placed to the left of the network number: R for Research, D for Defense, G for Government, and C for Commercial (see Appendix A for further details on this division of the network identification).

Network numbers are assigned for networks that are connected to the ARPA-Internet and DDN-Internet, and for independent networks that use the IP family protocols (these are usually commercial). These independent networks are marked with an asterisk preceding the number.

The administrators of independent networks must apply separately for permission to interconnect their network with either the ARPA-Internet of the DDN-Internet. Independent networks need not be listed in the working tables of either the ARPA-Internet or DDN-Internet hosts or gateways.

For various reasons, the assigned numbers of networks are sometimes changed. To ease the transition the old number will be listed for a transition period as well. These "old number" entries will be marked with a "T" following the number and preceding the name, and the network name will be suffixed "-TEMP".

Special Addresses:

In certain contexts, it is useful to have fixed addresses with functional significance rather than as identifiers of specific hosts. When such usage is called for, the address zero is to be interpreted as meaning "this", as in "this network". The address of all ones are to be interpreted as meaning "all", as in "all hosts". For example, the address 128.9.255.255 could be

interpreted as meaning all hosts on the network 128.9. Or, the address 0.0.0.37 could be interpreted as meaning host 37 on this network.

Assigned Network Numbers

Class A Networks

| * | Internet Address | Name | Network | References |
|---|---|---|---|---|
| | 000.rrr.rrr.rrr | | Reserved | [JBP] |
| R | 004.rrr.rrr.rrr | SATNET | Atlantic Satellite Network | [DM11] |
| D | 006.rrr.rrr.rrr T | YPG-NET-TEMP | Yuma Proving Grounds | [8,BXA] |
| D | 007.rrr.rrr.rrr T | EDN-TEMP | DCEC EDN | [EC5] |
| R | 008.rrr.rrr.rrr T | BBN-NET-TEMP | BBN Network | [JSG5] |
| R | 010.rrr.rrr.rrr | ARPANET | ARPANET | [8,36,REK2] |
| D | 011.rrr.rrr.rrr | DODIIS | DoD INTEL INFO SYS | [AY7] |
| C | 012.rrr.rrr.rrr | ATT | ATT, Bell Labs | [MH12] |
| C | 014.rrr.rrr.rrr | PDN | Public Data Network | [REK4] |
| R | 018.rrr.rrr.rrr T | MIT-TEMP | MIT Network | [17,91,DDC2] |
| D | 021.rrr.rrr.rrr | DDN-RVN | DDN-RVN | [MLC] |
| D | 022.rrr.rrr.rrr | DISNET | DISNET | [FLM2] |
| D | 023.rrr.rrr.rrr | DDN-TC-NET | DDN-TestCell-Network | [DH17] |
| D | 024.rrr.rrr.rrr | MINET | MINET | [8,DHH] |
| R | 025.rrr.rrr.rrr | RSRE-EXP-NET | RSRE | [RNM1] |
| D | 026.rrr.rrr.rrr | MILNET | MILNET | [FLM2] |
| R | 027.rrr.rrr.rrr T | NOSC-LCCN-TEMP | NOSC / LCCN | [RH6] |
| R | 028.rrr.rrr.rrr | WIDEBAND | Wide Band Satellite Net | [CJW2] |
| D | 029.rrr.rrr.rrr T | MILX25-TEMP | MILNET X.25 Temp | [MLC] |
| D | 030.rrr.rrr.rrr T | ARPAX25-TEMP | ARPA X.25 Temp | [MLC] |
| R | 032.rrr.rrr.rrr | UCL-TAC | UCL TAC | [PK] |
| R | 036.rrr.rrr.rrr T | SU-NET-TEMP | Stanford University Network | [JCM] |
| R | 039.rrr.rrr.rrr T | SRINET-TEMP | SRI Local Network | [GEOF] |
| R | 041.rrr.rrr.rrr | BBN-TEST-A | BBN-GATE-TEST-A | [RH6] |
| R | 044.rrr.rrr.rrr | AMPRNET | Amateur Radio Experiment Net | [HM] |
| | 001.rrr.rrr.rrr-003.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 005.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 009.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 013.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 015.rrr.rrr.rrr-017.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 019.rrr.rrr.rrr-020.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 031.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 033.rrr.rrr.rrr-035.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 037.rrr.rrr.rrr-038.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 040.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 042.rrr.rrr.rrr-043.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 045.rrr.rrr.rrr-126.rrr.rrr.rrr | | Unassigned | [JBP] |
| | 127.rrr.rrr.rrr | | Reserved | [JBP] |

Class B Networks

| * | Internet Address | Name | Network | References |
|---|---|---|---|---|
| | 128.000.rrr.rrr | | Reserved | [JBP] |
| R | 128.001.rrr.rrr | BBN-TEST-B | BBN-GATE-TEST-B | [RH6] |
| R | 128.002.rrr.rrr | CMU-NET | CMU-Ethernet | [HDW2] |
| R | 128.003.rrr.rrr | LBL-CSAM | LBL-CSAM-RESEARCH | [JS38] |
| R | 128.004.rrr.rrr | DCNET | LINKABIT DCNET | [62,DLM1] |
| R | 128.005.rrr.rrr | FORDNET | FORD DCNET | [62,DLM1] |
| R | 128.006.rrr.rrr | RUTGERS | RUTGERS | [CLH3] |
| R | 128.007.rrr.rrr | DFVLR | DFVLR DCNET Network | [HDC1] |
| R | 128.008.rrr.rrr | UMDNET | Univ of Maryland DCNET | [62,DLM1] |
| R | 128.009.rrr.rrr | ISI-NET | USC-ISI Local Network | [CMR] |
| R | 128.010.rrr.rrr | PURDUE-CS-NET | Purdue Computer Science | [CAK] |
| R | 128.011.rrr.rrr | BBN-CRONUS | BBN DOS Project | [57,WIM] |
| R | 128.012.rrr.rrr | SU-NET | Stanford University Net | [JCM] |
| D | 128.013.rrr.rrr | MATNET | Mobile Access Terminal Net | [DM11] |
| R | 128.014.rrr.rrr | BBN-SAT-TEST | BBN SATNET Test Net | [DM11] |
| R | 128.015.rrr.rrr | S1NET | LLL-S1-NET | [EAK1] |
| R | 128.016.rrr.rrr | UCLNET | University College London | [PK] |
| D | 128.017.rrr.rrr | MATNET-ALT | Mobile Access Terminal Alt | [DM11] |
| R | 128.018.rrr.rrr | SRINET | SRI Local Network | [GEOF] |
| D | 128.019.rrr.rrr | EDN | DCEC EDN | [EC5] |
| D | 128.020.rrr.rrr | BRLNET | BRLNET | [8,MJM2] |
| R | 128.021.rrr.rrr | SF-PR-1 | SF-1 Packet Radio Network | [JEM] |
| R | 128.022.rrr.rrr | SF-PR-2 | SF-2 Packet Radio Network | [JEM] |
| R | 128.023.rrr.rrr | BBN-PR | BBN Packet Radio Network | [JAW3] |
| R | 128.024.rrr.rrr | ROCKWELL-PR | Rockwell Packet Radio Net | [EHP] |
| D | 128.025.rrr.rrr | BRAGG-PR | Ft. Bragg Packet Radio Net | [JEM] |
| D | 128.026.rrr.rrr | SAC-PR | SAC Packet Radio Network | [BG5] |
| D | 128.027.rrr.rrr | DEMO-PR-1 | Demo-1 Packet Radio Network | [LCS] |
| D | 128.028.rrr.rrr | C3-PR | Testbed Development PR NET | [BG5] |
| R | 128.029.rrr.rrr | MITRE | MITRE Cablenet | [99,APS] |
| R | 128.030.rrr.rrr | MIT-NET | MIT Local Network | [DDC2] |
| R | 128.031.rrr.rrr | MIT-RES | MIT Research Network | [DDC2] |
| R | 128.032.rrr.rrr | UCB-ETHER | UC Berkeley Ethernet | [DAM1] |
| R | 128.033.rrr.rrr | BBN-NET | BBN Network | [JSG5] |
| R | 128.034.rrr.rrr | NOSC-LCCN | NOSC / LCCN | [RH6] |
| R | 128.035.rrr.rrr | CISLTESTNET1 | Honeywell | [48,49,RK1] |
| R | 128.036.rrr.rrr | YALE-NET | YALE NET | [113,JO5] |
| D | 128.037.rrr.rrr | YPG-NET | Yuma Proving Grounds | [8,BXA] |
| D | 128.038.rrr.rrr | NSWC-NET | NSWC Local Host Net | [RLH2] |
| R | 128.039.rrr.rrr | NTANET | NDRE-TIU | [PS3] |
| R | 128.040.rrr.rrr | UCL-NET-A | UCL | [RC7] |
| R | 128.041.rrr.rrr | UCL-NET-B | UCL | [RC7] |
| R | 128.042.rrr.rrr | RICE-NET | Rice University | [62,113,PGM] |
| R | 128.043.rrr.rrr | DRENET | Canada REF ARPANET | [8,JR17] |

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|---|---|---|---|---|
| D | 128.044.rrr.rrr | WSMR-NET | White Sands Network | [TBS] |
| C | 128.045.rrr.rrr | DEC-WRL-NET | DEC WRL Network | [113,RKJ2] |
| R | 128.046.rrr.rrr | PURDUE-NET | Purdue Campus Network | [CAK] |
| D | 128.047.rrr.rrr | TACTNET | Tactical Packet Net | [7,KTP] |
| C* | 128.048.rrr.rrr | UCDLA-NET | UCDLA MELVYL Network | [8,CXL] |
| R | 128.049.rrr.rrr | NOSC-ETHER | NOSC Ethernet | [113,RLB3] |
| G | 128.050.rrr.rrr | COINS | COINS On-Line Intel Net | [RLS6] |
| G | 128.051.rrr.rrr | COINSTNET | COINS TEST NETWORK | [RLS6] |
| R | 128.052.rrr.rrr | MIT-AI-NET | MIT AI NET | [113,MDC] |
| R | 128.053.rrr.rrr | SAC-PR-2 | SAC PRNET Number 2 | [BG5] |
| R | 128.054.rrr.rrr | UCSD | UC San Diego Network | [113,GH29] |
| R* | 128.055.rrr.rrr | MFENET | LLNL MFE Network | [97,DRP] |
| D | 128.056.rrr.rrr | USNA-NET | US Naval Academy Network | [TXS] |
| D | 128.057.rrr.rrr | DEMO-PR-2 | Demo-2 Packet Radio Net | [LCS] |
| C* | 128.058.rrr.rrr | SPAR | Schlumberger PA Net | [113,RXB] |
| R | 128.059.rrr.rrr | CU-NET | Columbia University | [113,LH2] |
| D | 128.060.rrr.rrr | NRL-LAN | NRL Lab Area Net | [WF3] |
| R* | 128.061.rrr.rrr | GATECH | Georgia Tech | [113,SXA] |
| R | 128.062.rrr.rrr | MCC-NET | MCC Corporate Net | [113,CBD] |
| R | 128.063.rrr.rrr | BRL-SUBNET | BRL-SUBNET-EXP | [RBN1] |
| R | 128.064.rrr.rrr-128.079.rrr.rrr | | Net Dynamics Exp | [ZSU] |
| D | 128.080.rrr.rrr | CECOMNET | CECOM EPR NET | [PFS2] |
| | 128.081.rrr.rrr-191.254.rrr.rrr | | Unassigned | [JBP] |
| | 191.255.rrr.rrr | | Reserved | [JBP] |

Class C Networks

| * | Internet Address | Name | Network | References |
|---|---|---|---|---|
| | 192.000.000.rrr | | Reserved | [JBP] |
| R | 192.000.001.rrr | BBN-TEST-C | BBN-GATE-TEST-C | [RH6] |
| | 192.000.002.rrr-192.000.255.rrr | | Unassigned | [JBP] |
| R | 192.001.000.rrr-192.001.008.rrr | | BBN local networks | [SGC] |
| R | 192.001.009.rrr | BBN-ENET3 | BBN-ENET3 | [SGC] |
| R | 192.001.010.rrr | BBN-NETR | BBN-NETR | [SGC] |
| R | 192.001.011.rrr | BBN-SPC-ENET | BBN-SPC-ENET | [SGC] |
| R | 192.001.012.rrr-192.003.255.rrr | | BBN local networks | [SGC] |
| R* | 192.004.000.rrr-192.004.255.rrr | | Bellcore-Net | [113,PXK] |
| R | 192.005.001.rrr | CISLHYPERNET | Honeywell | [RK1] |
| R | 192.005.002.rrr | WISC | Univ of Wisconsin Madison | [RS23] |
| C | 192.005.003.rrr | HP-DESIGN-AIDS | HP Design Aids | [NXK] |
| C | 192.005.004.rrr | HP-TCG-UNIX | Hewlett Packard TCG Unix | [NXK] |
| R | 192.005.005.rrr | DEC-MRNET | DEC Marlboro Ethernet | [106,KWP] |
| R | 192.005.006.rrr | DEC-MRRAD | DEC Marlboro Developmt | [106,KWP] |
| R | 192.005.007.rrr | CIT-CS-NET | Caltech-CS-Net | [112,DSW] |
| R | 192.005.008.rrr | WASHINGTON | University of Washington | [JAR4] |
| R | 192.005.009.rrr | AERONET | Aerospace Labnet | [2,LCN] |
| R | 192.005.010.rrr | ECLNET | USC-ECL-CAMPUS-NET | [MAB4] |

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|---|---|---|---|
| R 192.005.011.rrr | CSS-RING | SEISMIC-RESEARCH-NET | [RR2] |
| R 192.005.012.rrr | UTAH-NET | UTAH-COMPUTER-SCIENCE-NET | [RF1] |
| R 192.005.013.rrr | GSWDNET | Compion Network | [113,FAS] |
| R 192.005.014.rrr | RAND-NET | RAND Network | [113,JDG] |
| R 192.005.015.rrr | NYU-NET | NYU Network | [EF5] |
| R 192.005.016.rrr | LANL-LAND | Los Alamos Dev LAN | [113,JC11] |
| R 192.005.017.rrr | NRL-NET | Naval Research Lab | [AP] |
| R 192.005.018.rrr | IPTO-NET | ARPA-IPTO Office Net | [REK2] |
| R 192.005.019.rrr | UCIICS | UCI-ICS Res Net | [MTR] |
| R 192.005.020.rrr | CISLTTYNET | Honeywell | [RK1] |
| D 192.005.021.rrr | BRLNET1 | BRLNET1 | [8,MJM2] |
| D 192.005.022.rrr | BRLNET2 | BRLNET2 | [8,MJM2] |
| D 192.005.023.rrr | BRLNET3 | BRLNET3 | [8,MJM2] |
| D 192.005.024.rrr | BRLNET4 | BRLNET4 | [8,MJM2] |
| D 192.005.025.rrr | BRLNET5 | BRLNET5 | [8,MJM2] |
| D 192.005.026.rrr | NSRDCOA-NET | NSRDC Office Auto Net | [TC4] |
| D 192.005.027.rrr | DTNSRDC-NET | DTNSRDC-NET | [TC4] |
| R 192.005.028.rrr | RSRE-NULL | RSRE-NULL | [RNM1] |
| R 192.005.029.rrr | RSRE-ACC | RSRE-ACC | [RNM1] |
| R 192.005.030.rrr | RSRE-PR | RSRE-PR | [RNM1] |
| R*192.005.031.rrr | SIEMENS-NET | Siemens Research Network | [PXN] |
| R 192.005.032.rrr | CISLTESTNET2 | Honeywell | [48,49,RK1] |
| R 192.005.033.rrr | CISLTESTNET3 | Honeywell | [29,30,RK1] |
| R 192.005.034.rrr | CISLTESTNET4 | Honeywell | [29,30,RK1] |
| R 192.005.035.rrr | RIACS | USRA | [113,RLB1] |
| R 192.005.036.rrr | CORNELL-CS | CORNELL CS Research | [113,DK2] |
| R 192.005.037.rrr | UR-CS-NET | U of R CS 3Mb Net | [60,LB1] |
| R 192.005.038.rrr | SRI-C3ETHER | SRI-AITAD C3ETHERNET | [113,BG5] |
| R 192.005.039.rrr | UDEL-EECIS | Udel EECIS LAN | [107,CC2] |
| R 192.005.040.rrr | PUCC-NET-A | PURDUE Comp Cntr Net | [JRS8] |
| D 192.005.041.rrr | WISLAN | WIS Research LAN | [99,JRM1] |
| D 192.005.042.rrr | AFDSC-HYPER | AFDSC Hypernet | [MCA1] |
| R 192.005.043.rrr | CUCSNET | Columbia CS Net | [113,LH2] |
| R 192.005.044.rrr | Farber-PC-Net | Farber PC Network | [DJF] |
| R 192.005.045.rrr | AIDS-NET | AI&DS Network | [113,HA] |
| R 192.005.046.rrr | NTA-RING | NDRE-RING | [PS3] |
| R 192.005.047.rrr | NSRDC | NSRDC | [PXM] |
| R 192.005.048.rrr | PURDUE-CS-EN | Purdue CS Ethernet | [113,CAK] |
| R 192.005.049.rrr | UCSF | Univ of Calif, San Fran | [107,TF6] |
| R 192.005.050.rrr | CTH-CS-NET | Chalmers CSN Net | [107,UXB] |
| R 192.005.051.rrr | Theorynet | Cornell Theory Center | [113,AB13] |
| R 192.005.052.rrr | NLM-ETHER | NLM-LHNCBC-ETHERNET | [80,JA1] |
| R 192.005.053.rrr | UR-CS-ETHER | U of R CS 10Mb Net | [60,LB1] |
| R 192.005.054.rrr | AERO-A6 | Aerospace | [2,LCN] |
| R*192.005.055.rrr | UCLA-CECS | UCLA-CECS Network | [113,RBW] |
| C 192.005.056.rrr | TARTAN-NET | Tartan Labs | [SXB] |
| R 192.005.057.rrr | UDEL-CC | UDEL Comp Center | [107,RR18] |
| R 192.005.058.rrr | CSNET-PDN | CSNET X.25 Network | [54,RDR4] |

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|---|---|---|---|
| R*192.005.059.rrr | Inria SM90 | Inria GIP SM-90 | [MXS] |
| R*192.005.060.rrr | SM90 X1 | Inria SM-90 exp. 1 | [MXS] |
| R*192.005.061.rrr | SM90 X2 | Inria SM-90 exp. 2 | [MXS] |
| R*192.005.062.rrr | LITP SM90 | LITP SM-90 | [MXS] |
| R 192.005.064.rrr | AMES-NAS-NET | NASA ARC NAS LAN | [106,MF31] |
| R 192.005.065.rrr | NPRDC-Ether | NPRDC TRCF Ethernet | [LRB] |
| R 192.005.066.rrr | HARV-NET | Harvard Comp Sci Net | [SB28] |
| R 192.005.067.rrr | CECOM-ETHER | CECOM ADDCOMPE ETHER | [107,GIH] |
| R 192.005.068.rrr | AERO-130 | AEROSPACE-130 | [LCN] |
| R 192.005.069.rrr | UIUC-NET | Univ of IL at Urbana | [113,AXC] |
| G 192.005.070.rrr | CELAN | COINS Exper. LAN | [MXM] |
| R 192.005.071.rrr | SAC-ETHER | SAC C3 Ethernet | [113,BG5] |
| R*192.005.072.rrr-192.005.087.rrr | | U Chicago | [TXN] |
| R 192.005.088.rrr | YALE-EE-NET | YALE-EE-NET | [113,AG22] |
| R 192.005.089.rrr | UTEXAS-NET | U. Texas Austin Net | [113,JSQ1] |
| R 192.005.090.rrr | HARV-ETHER | Harvard CS Ethernet | [SB28] |
| R 192.005.091.rrr | PURDUE-ECN1 | Purdue ECN | [32,51,GG11] |
| R 192.005.092.rrr | BRAGG-ETHER | SRI Bragg Ether | [108,GIH] |
| R 192.005.093.rrr | SRI-DEMO | SRI Ether Demo | [108,GIH] |
| R*192.005.094.rrr | SDCRDCF-10MB | SDC R&D primary net | [113,DJV1] |
| R*192.005.095.rrr | SDCRDCF-3MB | SDC R&D old net | [60,DJV1] |
| R*192.005.096.rrr | UBC-CS-NET | UBC Comp Sci Net | [113,PXB] |
| R*192.005.097.rrr | UCLA-CS-LNI | UCLA CS LNI Network | [RBW] |
| R*192.005.098.rrr | UCLA-PIC | UCLA PIC Network | [113,RBW] |
| R 192.005.099.rrr | SPACENET | S-1 Workstation Network | [113,TXW] |
| 192.005.100.rrr | Unassigned | Unassigned | [JBP] |
| R 192.005.101.rrr | PUCC-GW-NET | Purdue Gateway Network | [JRS8] |
| R 192.005.102.rrr | PUCC-RHF-NET | PUCC RHF Based Net | [JRS8] |
| C*192.005.103.rrr | TYM-NTD-NET | Tymnet NTD Ethernet | [SMF] |
| R 192.005.104.rrr | THINK-INET | Thinking Machines | [113,BJN1] |
| R 192.005.105.rrr | CCA-POND | CCA Ethernet1 (POND) | [113,AL6] |
| C*192.005.106.rrr | BITSTREAM | Bitstream Type Foundry | [113,PXA] |
| R*192.005.107.rrr | PASC-ETHER | IBM PASC Ethernet | [113,GXL] |
| R*192.005.108.rrr | PASC-BB | IBM PASC Broadband | [52,GXL] |
| 192.005.109.rrr-192.005.255.rrr | | Unassigned | [JBP] |
| C*192.006.000.rrr-192.006.255.rrr | | Hewlett Packard | [AXG] |
| C*192.007.000.rrr-192.007.255.rrr | | Computer Consoles, Inc. | [RA11] |
| C*192.008.000.rrr-192.008.255.rrr | | Spartacus Computers, Inc. | [SXM] |
| C*192.009.000.rrr-192.009.255.rrr | | SUN Microsystem, Inc. | [WNJ] |
| C*192.010.000.rrr-192.010.040.rrr | | Symbolics, Inc. | [CH2] |
| R 192.010.041.rrr | SCRC-ETHERNET | SCRC ETHERNET | [113,CH2] |
| C*192.010.042.rrr-192.010.255.rrr | | Symbolics, Inc. | [CH2] |
| C*192.011.000.rrr-192.011.255.rrr | | ATT, Bell Labs | [MH12] |
| C 192.012.000.rrr | CADMUS-ETHERNET | CADMUS-NET | [MS9] |
| C 192.012.001.rrr | CADMUS-EXP-1 | CADMUS-NET-EXP-1 | [MS9] |
| C 192.012.002.rrr | CADMUS-EXP-2 | CADMUS-NET-EXP-2 | [MS9] |
| C*192.012.003.rrr | FLAIR | Fairchild AI Lab Net | [113,AMS1] |
| C*192.012.004.rrr | SCG-NET | Hughes SCG Net | [109,MXP] |

| | | | |
|---|---|---|---|
| R | 192.012.005.rrr | AIC-LISPMS | SRI-AIC-LispMachNet [113,PM4] |
| R | 192.012.006.rrr | NPS-C2 | NPS-C2 [113,AW9] |
| R | 192.012.007.rrr | NYU-CS-ETHER | NYU CompSci Ethernet [113,LOU] |
| D | 192.012.008.rrr | PICANET1 | Picatinny Arsenal LAN1[113,RFD1] |
| R | 192.012.009.rrr | CADRE-NET | Decision Systems Lab [SM6] |
| R | 192.012.010.rrr | CORNELL-ENG | Cornell-Engineering [113,BN9] |
| R | 192.012.011.rrr | MIT-36 | MIT Building 36 [113,RH60] |
| R | 192.012.012.rrr | WISC-ETHER | Wisconsin Ether Net [113,CBP] |
| R | 192.012.013.rrr | JHU-NET1 | JHU-NET1 [113,MO14] |
| R | 192.012.014.rrr | JHU-NET2 | JHU-NET2 [113,MO14] |
| R | 192.012.015.rrr | BROOKNET | BNL Brooknet III [113,GC] |
| R | 192.012.016.rrr | PRMNET | SRI-SURAN-EN [113,BP17] |
| G | 192.012.017.rrr | LLL-TIS-NET | LLL-TIS-NET [106,110,GP10] |
| R | 192.012.018.rrr | CIT-CS-10NET | Caltech 10Meg EtherNet[112,AD22] |
| R | 192.012.019.rrr | CIT-NET | Caltech Campus Net [112,AD22] |
| R | 192.012.020.rrr | CIT-SUN-NET | Caltech Sun Net [112,AD22] |
| R | 192.012.021.rrr | CIT-PHYSCOMP | Caltech Phys Comp Net [112,AD22] |
| R | 192.012.022.rrr | UTCSRES | UTCS Net Research [113,JSQ1] |
| R | 192.012.023.rrr | UTCSTTY | UTCS TTY Kludgenet [113,JSQ1] |
| R | 192.012.024.rrr | MICANET | MITRE (Experimental) [JN2] |
| R | 192.012.025.rrr | CSS-GRAMINAE | CSS Workstation Net [55,RR2] |
| R | 192.012.026.rrr | NOSC-NETR | Net-R Testbed at BBN [94,CP10] |
| R | 192.012.027.rrr | UR-LASER | UR Laser Energetics [113,WXL] |
| R* | 192.012.028.rrr | RIACS-X-NET | RIACS-Experimental-Net [DG28] |
| D | 192.012.029.rrr | RF-EVANS | ADDCOMPE DC3 LAN1 [107,MB31] |
| D | 192.012.030.rrr | RF-HEX-A | ADDCOMPE DC3 LAN2 [107,MB31] |
| D | 192.012.031.rrr | USNA-ENET | USNA Engineering Net [107,TXS] |
| R* | 192.012.032.rrr | CMU-VINEYARD | CMU File Cluster Net [113,MXK] |
| R | 192.012.033.rrr | SRI-CSL-NET | SRI-CSL 10MB Ethernet [GEOF] |
| C* | 192.012.034.rrr-192.012.043.rrr | | Schlumberger PA Net [113,RXB] |
| R | 192.012.044.rrr | NRTC-NET | Northrop Research Net [113,RSM1] |
| R | 192.012.045.rrr | ACC-SB-IMP-NET | ACC Santa Barbara IMP [AB20] |
| R | 192.012.046.rrr | ACC-SB-ETHER | ACC Santa Barbara Ethernet[AB20] |
| R | 192.012.047.rrr | UMN-UCC-VA | Univ. of Minnesota [RXG] |
| G | 192.012.048.rrr | AMES-ED-EXPNET | Code ED Exp. Net. [113,MSM1] |
| G | 192.012.049.rrr | AMES-ED-NET | Code ED IP Net [113,MSM1] |
| G | 192.012.050.rrr | AMES-DB-NET | Ames DBridge Net [113,MSM1] |
| R | 192.012.051.rrr | THINK-CHAOS | TMC Chaos [113,BJN1] |
| R* | 192.012.052.rrr | NEURO-NET | NEURO-NET [113,JXB] |
| R* | 192.012.053.rrr | PU-LCA | Princeton U. LCA [113,CXH] |
| R | 192.012.054.rrr | WISC-MADISON | Univ Wisc - MACC [113,JXD] |
| R | 192.012.055.rrr | HAZ-LPR-BETA | Hazeltine LPR Net [113,KXK] |
| R | 192.012.056.rrr | UTAH-AP-NET | Utah-Appolo-Ring-Net [JL15] |
| R | 192.012.057.rrr | MCC-AI-NET | MCC AI Subnet [113,CBD] |
| R | 192.012.058.rrr | MCC-CAD-NET | MCC CAD Subnet [113,CBD] |
| R | 192.012.059.rrr | MCC-DB-NET | MCC DB Subnet [113,CBD] |
| R | 192.012.060.rrr | MCC-HI-NET | MCC HI Subnet [113,CBD] |
| R | 192.012.061.rrr | MCC-SW-NET | MCC SW Subnet [113,CBD] |

| | | | | |
|---|---|---|---|---|
| R | 192.012.062.rrr | DREA-ENET | DREA Lispm & Vaxen | [113,GLH5] |
| R | 192.012.063.rrr | CYPRESS | CYPRESS Serial Net | [CAK] |
| D | 192.012.064.rrr | LOGNET | Logistics Net GW | [55,JXR] |
| | 192.012.065.rrr-192.012.255.rrr | | Unassigned | [JBP] |
| D | 192.013.000.rrr-192.014.255.rrr | | DODIIS Subnetworks | [AY5] |
| C* | 192.015.000.rrr-192.015.255.rrr | | NBINET | [DM27] |
| G | 192.016.000.rrr-192.016.049.rrr | | LANLLAN | [113,JC11] |
| | 192.016.050.rrr-223.255.254.rrr | | Unassigned | [JBP] |
| | 223.255.255.rrr | | Reserved | [JBP] |

Other Reserved Internet Addresses

| * | Internet Address | Name | Network | References |
|---|---|---|---|---|
| | 224.000.000.000-255.255.255.255 | | Reserved | [JBP] |

Network Totals

Assigned for the ARPA-Internet and the DDN-Internet

| Class | A | B | C | Total |
|---|---|---|---|---|
| Research | 7 | 56 | 870 | 933 |
| Defense | 8 | 15 | 526 | 549 |
| Government | 0 | 2 | 55 | 57 |
| Commercial | 2 | 1 | 6 | 9 |
| Total | 17 | 74 | 1457 | 1548 |

Allocated for Internet and Independent Uses

| Class | A | B | C | Total |
|---|---|---|---|---|
| Research | 7 | 57 | 1415 | 1479 |
| Defense | 8 | 15 | 526 | 549 |
| Government | 0 | 2 | 55 | 57 |
| Commercial | 2 | 3 | 1555 | 1560 |
| Total | 17 | 77 | 3551 | 3645 |

Maximum Allowed

| Class | A | B | C | Total |
|---|---|---|---|---|
| Research | 8 | 1024 | 65536 | 66568 |
| Defense | 24 | 3072 | 458752 | 461848 |
| Government | 24 | 3072 | 458752 | 461848 |
| Commercial | 74 | 9214 | 1114137 | 1123394 |
| Total | 126 | 16382 | 2097150 | 2113658 |

## ASSIGNED VERSION NUMBERS

In the Internet Protocol (IP) [35,80] there is a field to identify the version of the internetwork general protocol. This field is 4 bits in size.

Assigned Internet Version Numbers

| Decimal | Keyword | Version | References |
|---|---|---|---|
| 0 | | Reserved | [JBP] |
| 1-3 | | Unassigned | [JBP] |
| 4 | IP | Internet Protocol | [33,73,JBP] |
| 5 | ST | ST Datagram Mode | [36,JWF] |
| 6-14 | | Unassigned | [JBP] |
| 15 | | Reserved | [JBP] |

## ASSIGNED PROTOCOL NUMBERS

In the Internet Protocol (IP) [35,80] there is a field, called Protocol, to identify the the next level protocol. This is an 8 bit field.

Assigned Internet Protocol Numbers

| Decimal | Keyword | Protocol | References |
|---|---|---|---|
| 0 | | Reserved | [JBP] |
| 1 | ICMP | Internet Control Message | [72,JBP] |
| 2 | | Unassigned | [JBP] |
| 3 | GGP | Gateway-to-Gateway | [47,MB] |
| 4 | | Unassigned | [JBP] |
| 5 | ST | Stream | [39,JWF] |
| 6 | TCP | Transmission Control | [35,81,JBP] |
| 7 | UCL | UCL | [PK] |
| 8 | EGP | Exterior Gateway Protocol | [96,DLM1] |
| 9 | IGP | any private interior gateway | [JBP] |
| 10 | BBN-RCC-MON | BBN RCC Monitoring | [SGC] |
| 11 | NVP-II | Network Voice Protocol | [18,SC3] |
| 12 | PUP | PUP | [12,HGM] |
| 13 | ARGUS | ARGUS | [RWS4] |
| 14 | EMCON | EMCON | [BN7] |
| 15 | XNET | Cross Net Debugger | [45,JFH2] |
| 16 | CHAOS | Chaos | [NC3] |
| 17 | UDP | User Datagram | [35,79,JBP] |
| 18 | MUX | Multiplexing | [19,JBP] |
| 19 | DCN-MEAS | DCN Measurement Subsystems | [DLM1] |
| 20 | HMP | Host Monitoring | [5,RH6] |
| 21 | PRM | Packet Radio Measurement | [ZSU] |
| 22 | XNS-IDP | XEROX NS IDP | [114,LLG] |
| 23 | TRUNK-1 | Trunk-1 | [BML] |
| 24 | TRUNK-2 | Trunk-2 | [BML] |
| 25 | LEAF-1 | Leaf-1 | [BML] |
| 26 | LEAF-2 | Leaf-2 | [BML] |
| 27 | RDP | Reliable Data Protocol | [111,RH6] |
| 28 | IRTP | Internet Reliable Transaction | [61,TXM] |
| 29-60 | | Unassigned | [JBP] |
| 61 | | any host internal protocol | [JBP] |
| 62 | CFTP | CFTP | [40,HCF2] |
| 63 | | any local network | [JBP] |
| 64 | SAT-EXPAK | SATNET and Backroom EXPAK | [DM11] |
| 65 | MIT-SUBNET | MIT Subnet Support | [NC3] |
| 66 | RVD | MIT Remote Virtual Disk Protocol | [MBG] |
| 67 | IPPC | Internet Pluribus Packet Core | [DM11] |
| 68 | | any distributed file system | [JBP] |

| | | | |
|---|---|---|---|
| 69 | SAT-MON | SATNET Monitoring | [DM11] |
| 70 | | Unassigned | [JBP] |
| 71 | IPCV | Internet Packet Core Utility | [DM11] |
| 72-75 | | Unassigned | [JBP] |
| 76 | BR-SAT-MON | Backroom SATNET Monitoring | [DM11] |
| 77 | | Unassigned | [JBP] |
| 78 | WB-MON | WIDEBAND Monitoring | [DM11] |
| 79 | WB-EXPAK | WIDEBAND EXPAK | [DM11] |
| 80-254 | | Unassigned | [JBP] |
| 255 | | Reserved | [JBP] |

## ASSIGNED PORT NUMBERS

Ports are used in the TCP [35,81] to name the ends of logical connections which carry long term conversations. For the purpose of providing services to unknown callers, a service contact port is defined. This list specifies the port used by the server process as its contact port. The contact port is sometimes called the "well-known port".

To the extent possible, these same port assignments are used with the UDP [35,79].

The assigned ports use a small portion of the possible port numbers. The assigned ports have all except the low order eight bits cleared to zero. The low order eight bits are specified here.

Port Assignments:

| Decimal | Keyword | Description | References |
|---|---|---|---|
| 0 | | Reserved | [JBP] |
| 1-4 | | Unassigned | [JBP] |
| 5 | RJE | Remote Job Entry | [14,36,JBP] |
| 7 | ECHO | Echo | [70,JBP] |
| 9 | DISCARD | Discard | [69,JBP] |
| 11 | USERS | Active Users | [65,JBP] |
| 13 | DAYTIME | Daytime | [68,JBP] |
| 15 | NETSTAT | Who is up or NETSTAT | [JBP] |
| 17 | QUOTE | Quote of the Day | [75,JBP] |
| 19 | CHARGEN | Character Generator | [67,JBP] |
| 20 | FTP | File Transfer [Default Data] | [35,71,JBP] |
| 21 | FTP | File Transfer [Control] | [35,71,JBP] |
| 23 | TELNET | Telnet | [87,JBP] |
| 25 | SMTP | Simple Mail Transfer | [35,77,JBP] |
| 27 | NSW-FE | NSW User System FE | [20,RHT] |
| 29 | MSG-ICP | MSG ICP | [63,RHT] |
| 31 | MSG-AUTH | MSG Authentication | [63,RHT] |
| 33 | | Unassigned | [JBP] |
| 35 | | any private printer server | [JBP] |
| 37 | TIME | Time | [83,JBP] |
| 39 | RLP | Resource Location Protocol | [1,MA] |
| 41 | GRAPHICS | Graphics | [36,103,JBP] |
| 42 | NAMESERVER | Host Name Server | [35,74,JBP] |
| 43 | NICNAME | Who Is | [35,44,JAKE] |
| 44 | MPM-FLAGS | MPM FLAGS Protocol | [JBP] |
| 45 | MPM | Message Processing Module [recv] | [73,JBP] |
| 46 | MPM | MPM [default send] | [79,JBP] |
| 47 | NI-FTP | NI FTP | [109,SK] |

| | | | |
|---|---|---|---|
| 49 | LOGIN | Login Host Protocol | [PHD1] |
| 51 | LA-MAINT | IMP Logical Address Maintenance | [59,AGM] |
| 53 | DOMAIN | Domain Name Server | [PM1] |
| 55 | ISI-GL | ISI Graphics Language | [11,RB6] |
| 57 | | any private terminal access | [JBP] |
| 59 | | any private file service | [JBP] |
| 61 | NI-MAIL | NI MAIL | [9,SK] |
| 63 | VIA-FTP | VIA Systems - FTP | [DXD] |
| 65 | TACACS-DS | TACACS-Database Service | [115,RHT] |
| 67 | | Unassigned | [JBP] |
| 69 | TFTP | Trivial File Transfer | [35,90,KRS] |
| 71 | NETRJS | Remote Job Service | [13,36,RTB] |
| 72 | NETRJS | Remote Job Service | [13,36,RTB] |
| 73 | NETRJS | Remote Job Service | [13,36,RTB] |
| 74 | NETRJS | Remote Job Service | [13,36,RTB] |
| 75 | | any private dial out service | [JBP] |
| 77 | | any private RJE service | [JBP] |
| 79 | FINGER | Finger | [36,42,KLH] |
| 81 | | HOSTS2 Name Server | [EAK1] |
| 83 | HOSTS2-NS | MIT ML Device | [DPR] |
| 85 | MIT-ML-DEV | MIT ML Device | [DPR] |
| 87 | | any private terminal link | [JBP] |
| 89 | SU-MIT-TG | SU/MIT Telnet Gateway | [MRC] |
| 91 | MIT-DOV | MIT Dover Spooler | [EBM] |
| 93 | DCP | Device Control Protocol | [DT15] |
| 95 | SUPDUP | SUPDUP | [23,MRC] |
| 97 | SWIFT-RVF | Swift Remote Vitural File Protocol | [MXR] |
| 99 | METAGRAM | Metagram Relay | [GEOF] |
| 101 | HOSTNAME | NIC Host Name Server | [35,43,JAKE] |
| 103 | | Unassigned | [JBP] |
| 105 | CSNET-NS | Mailbox Name Nameserver | [101,MHS1] |
| 107 | RTELNET | Remote Telnet Service | [76,JBP] |
| 109 | POP-2 | Post Office Protocol - Version 2 | [16,JKR1] |
| 111 | SUNRPC | SUN Remote Procedure Call | [DXG] |
| 113 | AUTH | Authentication Service | [104,MCA1] |
| 115 | SFTP | Simple File Transfer Protocol | [54,MKL1] |
| 116 | | Unassigned | [JBP] |
| 117 | UUCP-PATH | UUCP Path Service | [34,MAE] |
| 119 | UNTP | USENET News Transfer Protocol | [117,PL4] |
| 120-129 | | Unassigned | [JBP] |
| 131 | | Unassigned | [JBP] |
| 132-223 | | Reserved | [JBP] |
| 224-241 | | Unassigned | [JBP] |
| 243 | SUR-MEAS | Survey Measurement | [10,AV] |
| 245 | LINK | LINK | [15,RDB2] |
| 247-255 | | Unassigned | [JBP] |

## ASSIGNED AUTONOMOUS SYSTEM NUMBERS

The Exterior Gateway Protocol (EGP) [96,93] specifies that groups of gateways may form autonomous systems. The EGP provides a 16-bit field for identifying such systems. The values of this field are registered here.

Autonomous System Numbers:

| Decimal | Name | References |
|---|---|---|
| 0 | Reserved | [JBP] |
| 1 | The BBN Core Gateways | [MB] |
| 2 | DCN-AS | [DLM1] |
| 3 | The MIT Gateways | [LM8] |
| 4 | ISI-AS | [JKR1] |
| 5 | Symbolics | [CH2] |
| 6 | HIS-Multics | [BIM,RK1] |
| 7 | UK-MOD | [RNM1] |
| 8 | RICE-AS | [PGM] |
| 9 | CMU-ROUTER | [MA] |
| 10 | CSNET-PDN-AS | [RDR4] |
| 11 | HARVARD | [SB28] |
| 12 | NYU-DOMAIN | [EF5] |
| 13 | BRL-AS | [RBN1] |
| 14 | COLUMBIA-GW | [BC14] |
| 15 | NET DYNAMICS EXP | [ZSU] |
| 16 | LBL | [WG] |
| 17 | PURDUE-CS | [KCS1] |
| 18 | UTEXAS | [JSQ1] |
| 19 | CSS-DOMAIN | [RR2] |
| 20 | UR | [LB16] |
| 21 | RAND | [JDG] |
| 22 | NOSC | [RLB3] |
| 23 | RIACS-AS | [DG28] |
| 24 | AMES-NAS-GW | [MF31] |
| 25 | UCB | [MK17] |
| 26 | CORNELL | [BN9] |
| 27 | UMDNET | [JWO1] |
| 28 | DFVLR-SYS | [HDC1] |
| 29 | YALE-AS | [JG46] |
| 30 | SRI-AICNET | [PM4] |
| 31 | CIT-CS | [AD22] |
| 32 | STANFORD | [PA5] |
| 33 | DEC-WRL-AS | [RKJ2] |
| 34 | UDEL-EECIS | [NMM] |
| 35 | MICATON | [JN2] |
| 36 | EGP-TESTOR | [BP17] |

| | | |
|---|---|---|
| 37 | NSWC | [MXP1] |
| 38 | UIUC | [AKC] |
| 39 | NRL-ITD | [AP] |
| 40 | MIT-TEST | [NC3] |
| 41 | AMES | [MSM1] |
| 42 | THINK-AS | [BJN1] |
| 43 | BNL-AS | [GC] |
| 44-65534 | Unassigned | [JBP] |
| 65535 | Reserved | [JBP] |

## ASSIGNED ARPANET LOGICAL ADDRESSES

The ARPANET facility for "logical addressing" is described in RFC 878 [58]. A portion of the possible logical addresses are reserved for standard uses.

There are 49,152 possible logical host addresses. Of these, 256 are reserved for assignment to well-known functions. Assignments for well-known functions are made by Joyce Reynolds. Assignments for other logical host addresses are made by the NIC.

Logical Address Assignments:

| Decimal | Description | References |
|---|---|---|
| 0 | Reserved | [JBP] |
| 1 | The BBN Core Gateways | [MB] |
| 2-255 | Unassigned | [JBP] |
| 256 | Reserved | [JBP] |

## ASSIGNED ARPANET LINK NUMBERS

The word "link" here refers to a field in the original ARPANET Host/IMP interface leader. The link was originally defined as an 8-bit field. Later specifications defined this field as the "message-id" with a length of 12 bits. The name link now refers to the high order 8 bits of this 12-bit message-id field. The Host/IMP interface is defined in BBN Report 1822 [8].

The low-order 4 bits of the message-id field are called the sub-link. Unless explicitly specified otherwise for a particular protocol, there is no sender to receiver significance to the sub-link. The sender may use the sub-link in any way he chooses (it is returned in the RFNM by the destination IMP), the receiver should ignore the sub-link.

Link Assignments:

| Decimal | Description | References |
|---|---|---|
| 0 | Reserved | [JBP] |
| 1-149 | Unassigned | [JBP] |
| 150 | Xerox NS IDP | [114,LLG] |
| 151 | Unassigned | [JBP] |
| 152 | PARC Universal Protocol | [12,HGM] |
| 153 | TIP Status Reporting | [JGH] |
| 154 | TIP Accounting | [JGH] |
| 155 | Internet Protocol [regular] | [35,80,JBP] |
| 156-158 | Internet Protocol [experimental] | [35,80,JBP] |
| 159 | Figleaf Link | [JBW1] |
| 160-194 | Unassigned | [JBP] |
| 195 | ISO-IP | [116,RXM] |
| 196-247 | Experimental Protocols | [JBP] |
| 248-255 | Network Maintenance | [JGH] |

## IEEE 802 SAP NUMBERS OF INTEREST

Some of the networks of all classes are IEEE 802 Networks. These systems may use a Service Access Point field in much the same way the ARPANET uses the "link" field. For further information and SAP number assignments, please contact: Mr. Maris Graube, Chairman, IEEE 802, c/o Tektronix, P.O. Box 500, D/S 50-473, Beaverton, Oregon, 97077.

Assignments:

| Service Access Point | | Description | References |
|---|---|---|---|
| decimal | binary | | |
| 96 | 01100000 | DOD IP | [35,79,JBP] |

The IEEE 802.3 header does not have a type field to indicate what protocol is used at the next level. As a work around for this problem, one can put the Ethernet type field value in the IEEE 802.3 header's length field and use the following test to determine the appropriate processing on receipt.

If the value in the length field of the IEEE 802.3 header is greater than the Ethernet maximum packet length, then interpret the value as an Ethernet type field. Otherwise, interpret the packet as an IEEE 802.3 packet.

## ETHERNET NUMBERS OF INTEREST

Many of the networks of all classes are Ethernets (10Mb) or Experimental Ethernets (3Mb). These systems use a message "type" field in much the same way the ARPANET uses the "link" field.

If you need an Ethernet number, contact the XEROX Corporation, Office Products Division, Network Systems Administration Office, 333 Coyote Hill Road, Palo Alto, California, 94304.

Assignments:

| Ethernet | | Exp. Ethernet | | Description | References |
|---|---|---|---|---|---|
| decimal | Hex | decimal | octal | | |
| 512 | 0200 | 512 | 1000 | XEROX PUP | [1,HGM] |
| 513 | 0201 | - | - | PUP Addr. Trans. | [HGM] |
| 1536 | 0600 | 1536 | 3000 | XEROX NS IDP | [113,HGM] |
| 2048 | 0800 | 513 | 1001 | DOD IP | [35,79,JBP] |
| 2049 | 0801 | - | - | X.75 Internet | [HGM] |
| 2050 | 0802 | - | - | NBS Internet | [HGM] |
| 2051 | 0803 | - | - | ECMA Internet | [HGM] |
| 2052 | 0804 | - | - | Chaosnet | [HGM] |
| 2053 | 0805 | - | - | X.25 Level 3 | [HGM] |
| 2054 | 0806 | - | - | ARP | [63,DCP1] |
| 2055 | 0807 | - | - | XNS Compatability | [HGM] |
| 2076 | 081C | - | - | Symbolics Private | [DCP1] |
| 32771 | 8003 | - | - | Cronus VLN | [104,DT15] |
| 32772 | 8004 | - | - | Cronus Direct | [104,DT15] |
| 32774 | 8006 | - | - | Nestar | [HGM] |
| 32784 | 8010 | - | - | Excelan | [HGM] |
| 32821 | 8035 | - | - | Reverse ARP | [38,JCM] |
| 36864 | 9000 | - | - | Loopback | [HGM] |

The standard for transmission of IP datagrams over Ethernets and Experimental Ethernets is specified in RFC 894 [50] and RFC 895 [65] respectively.

## ASSIGNED ADDRESS RESOLUTION PROTOCOL PARAMETERS

The Address Resolution Protocol (ARP) specified in RFC 826 [64] has several parameters. The assigned values for these parameters are listed here.

Assignments:

Operation Code (op)

1 REQUEST
2 REPLY

Hardware Type (hrd)

| Type | Description | References |
|---|---|---|
| 1 | Ethernet (10Mb) | [JBP] |
| 2 | Experimental Ethernet (3Mb) | [JBP] |
| 3 | Amateur Radio AX.25 | [PXK] |
| 4 | Proton ProNET Token Ring | [JBP] |

Protocol Type (pro)

Use the same codes as listed in the section called "Ethernet Numbers of Interest".

## ASSIGNED PUBLIC DATA NETWORK NUMBERS

One of the Internet Class A Networks is the international system of Public Data Networks. This section lists the mapping between the Internet Addresses and the Public Data Network Addresses (X.121).

Assignments:

| Internet | Public Data Net | Description | References |
|---|---|---|---|
| 014.000.000.000 | | Reserved | [JBP] |
| 014.000.000.001 | 3110-317-00035 00 | PURDUE-TN | [CAK] |
| 014.000.000.002 | 3110-608-00027 00 | UWISC-TN | [CAK] |
| 014.000.000.003 | 3110-302-00024 00 | UDEL-TN | [CAK] |
| 014.000.000.004 | 2342-192-00149 23 | UCL-VTEST | [PK] |
| 014.000.000.005 | 2342-192-00300 23 | UCL-TG | [PK] |
| 014.000.000.006 | 2342-192-00300 25 | UK-SATNET | [PK] |
| 014.000.000.007 | 3110-608-00024 00 | UWISC-IBM | [MHS1] |
| 014.000.000.008 | 3110-213-00045 00 | RAND-TN | [MO2] |
| 014.000.000.009 | 2342-192-00300 23 | UCL-CS | [PK] |
| 014.000.000.010 | 3110-617-00025 00 | BBN-VAN-GW | [JD21] |
| 014.000.000.011 | 2405-015-50300 00 | CHALMERS | [UXB] |
| 014.000.000.012 | 3110-713-00165 00 | RICE | [PAM6] |
| 014.000.000.013 | 3110-415-00261 00 | DECWRL | [PAM6] |
| 014.000.000.014 | 3110-408-00051 00 | IBM-SJ | [SA1] |
| 014.000.000.015 | 2041-117-01000 00 | SHAPE | [PG3] |
| 014.000.000.016 | 2628-153-90075 00 | DFVLR4-X25 | [HDC1] |
| 014.000.000.017 | 3110-213-00032 00 | ISI-VAN-GW | [JD21] |
| 014.000.000.018 | 2624-522-80900 52 | DFVLR5-X25 | [HDC1] |
| 014.000.000.019 | 2041-170-10000 00 | SHAPE-X25 | [JFW] |
| 014.000.000.020-014.255.255.254 | | Unassigned | [JBP] |
| 014.255.255.255 | | Reserved | [JBP] |

The standard for transmission of IP datagrams over the Public Data Network is specified in RFC 877 [54].

## ASSIGNED TELNET OPTIONS

The Telnet Protocol has a number of options that may be negotiated. These options are listed here. "Official ARPA-Internet Protocols" [92] provides more detailed information.

| Options | Name | References |
|---|---|---|
| 0 | Binary Transmission | [85,JBP] |
| 1 | Echo | [86,JBP] |
| 2 | Reconnection | [6,JBP] |
| 3 | Suppress Go Ahead | [89,JBP] |
| 4 | Approx Message Size Negotiation | [36,JBP] |
| 5 | Status | [88,JBP] |
| 6 | Timing Mark | [90,JBP] |
| 7 | Remote Controlled Trans and Echo | [82,JBP] |
| 8 | Output Line Width | [4,JBP] |
| 9 | Output Page Size | [5,JBP] |
| 10 | Output Carriage-Return Disposition | [24,JBP] |
| 11 | Output Horizontal Tab Stops | [28,JBP] |
| 12 | Output Horizontal Tab Disposition | [27,JBP] |
| 13 | Output Formfeed Disposition | [25,JBP] |
| 14 | Output Vertical Tabstops | [30,JBP] |
| 15 | Output Vertical Tab Disposition | [29,JBP] |
| 16 | Output Linefeed Disposition | [26,JBP] |
| 17 | Extended ASCII | [110,JBP] |
| 18 | Logout | [21,MRC] |
| 19 | Byte Macro | [31,JBP] |
| 20 | Data Entry Terminal | [33,JBP] |
| 22 | SUPDUP | [23,22,MRC] |
| 22 | SUPDUP Output | [41,MRC] |
| 23 | Send Location | [53,EAK1] |
| 24 | Terminal Type | [102,MHS1] |
| 25 | End of Record | [77,JBP] |
| 26 | TACACS User Identification | [3,BA4] |
| 27 | Output Marking | [98,SXS] |
| 255 | Extended-Options-List | [84,JBP] |

## OFFICIAL MACHINE NAMES

These are the Official Machine Names as they appear in the NIC Host Table. Their use is described in RFC 810 [37].

ALTO
AMDAHL-V7
BURROUGHS-B/29
C/30
C/70
CADLINC
CADR
CDC-173
DEC-10
DEC-1050
DEC-1080
DEC-1090
DEC-1090B
DEC-1090T
DEC-2020T
DEC-2040
DEC-2040T
DEC-2050T
DEC-2060
DEC-2060T
DEC-FALCON
DPS8/70M
FOONLY-F2
FOONLY-F3
FOONLY-F4
H-316
H-60/68
H-68
H-68/80
H-89
HONEYWELL-DPS-8/70M
IBM-158
IBM-360/67
IBM-370/3033
IBM-4341
IBM-PC
IMSAI
K102
LSI-11
LSI-11/23
M6800
MAXC
MLC

NAS-AS/5
ONYX-09001
ONYX-28000
PDP-11
PDP-11/34
PDP-11/40
PDP-11/44
PDP-11/45
PDP-11/50
PDP-11/70
PERQ
PLURIBUS
ROLM-1666
SMI
SUN-150
SYMBOLICS-3600
UNIVAC-1100
VAX-11/730
VAX-11/750
VAX-11/780
VAX-11/785
XEROX-8010

## OFFICIAL SYSTEM NAMES

These are the Official System Names as they appear in the NIC Host Table. Their use is described in RFC 810 [37].

ASP
AUGUST
BKY
CCP
DOS/360
ELF
EPOS
EXEC-8
GCOS
GPOS
ITS
INTERCOM
INTERLISP
KRONOS
MCP
MOS
MPX-RT
MULTICS
MVT
NOS
NOS/BE
OS/MVS
OS/MVT
RIG
RSX-11M
RT11
SCOPE
SIGNAL
SINTRAN
TAC
TENEX
TOPS-10
TOPS-20
TSS
UNIX
VM/370
VM/CMS
VMS
WAITS
XDE

## OFFICIAL PROTOCOL AND SERVICE NAMES

These are the Official Protocol Names. Their use is described in greater detail in RFC 810 [37].

| | |
|---|---|
| ARGUS | - ARGUS Protocol |
| AUTH | - Authentication Service |
| BBN-RCC-MON | - BBN RCC Monitoring |
| BR-SAT-MON | - Backroom SATNET Monitoring |
| CFTP | - CFTP |
| CHAOS | - CHAOS Protocol |
| CHARGEN | - Character Generator Protocol |
| CLOCK | - DCNET Time Server Protocol |
| CSNET-NS | - CSNET Mailbox Nameserver Protocol |
| DAYTIME | - Daytime Protocol |
| DCN-MEAS | - DCN Measurement Subsystems Protocol |
| DCP | - Device Control Protocol |
| DISCARD | - Discard Protocol |
| DOMAIN | - Domain Name Server |
| ECHO | - Echo Protocol |
| EGP | - Exterior Gateway Protocol |
| EMCON | - Emission Control Protocol |
| FINGER | - Finger Protocol |
| FTP | - File Transfer Protocol |
| GGP | - Gateway Gateway Protocol |
| GRAPHICS | - Graphics Protocol |
| HMP | - Host Monitoring Protocol |
| HOST2-NS | - Host2 Name Server |
| HOSTNAME | - Hostname Protocol |
| ICMP | - Internet Control Message Protocol |
| IGP | - Interior Gateway Protocol |
| IP | - Internet Protocol |
| IPCU | - Internet Packet Core Utility |
| IPPC | - Internet Pluribus Packet Core |
| IRTP | - Internet Reliable Transaction Protocol |
| ISI-GL | - ISI Graphics Language Protocol |
| LA-MAINT | - IMP Logical Address Maintenance |
| LEAF-1 | - Leaf-1 Protocol |
| LEAF-2 | - Leaf-2 Protocol |
| LINK | - Link Protocol |
| LOGIN | - Login Host Protocol |
| METAGRAM | - Metagram Relay |
| MIT-ML-DEV | - MIT ML Device |
| MIT-SUBNET | - MIT Subnet Support |
| MIT-DOV | - MIT Dover Spooler |
| MPM | - Internet Message Protocol (Multimedia Mail) |
| MPM-FLAGS | - MP Flags Protocol |
| MSG-AUTH | - MSG Authentication Protocol |

| | |
|---|---|
| MSG-ICP | - MSG ICP Protocol |
| MUX | - Multiplexing Protocol |
| NAMESERVER | - Host Name Server |
| NETED | - Network Standard Text Editor |
| NETRJS | - Remote Job Service |
| NI-FTP | - NI File Transfer Protocol |
| NI-MAIL | - NI Mail Protocol |
| NICNAME | - Who Is Protocol |
| NSW-FE | - NSW User System Front End |
| NVP-II | - Network Voice Protocol |
| POP2 | - Post Office Protocol - Version 2 |
| PRM | - Packet Radio Measurement |
| PUP | - PUP Protocol |
| QUOTE | - Quote of the Day Protocol |
| RDP | - Reliable Data Protocol |
| RJE | - Remote Job Entry |
| RLP | - Resource Location Protocol |
| RTELNET | - Remote Telnet Service |
| RVD | - Remote Virtual Disk Protocol |
| SAT-EXPAK | - Satnet and Backroom EXPAK |
| SAT-MON | - SATNET Monitoring |
| SFTP | - Simple File Transfer Protocol |
| SMTP | - Simple Mail Transfer Protocol |
| ST | - Stream Protocol |
| SU-MIT-TG | - SU/MIT Telnet Gateway Protocol |
| SUNRPC | - SUN Remote Procedure Call |
| SUPDUP | - SUPDUP Protocol |
| SUR-MEAS | - Survey Measurement |
| SWIFT-RVF | - Remote Virtual File Protocol |
| TACACS-DS | - TACACS-Database Service |
| TCP | - Transmission Control Protocol |
| TELNET | - Telnet Protocol |
| TFTP | - Trivial File Transfer Protocol |
| TIME | - Time Server Protocol |
| TRUNK-1 | - Trunk-1 Protocol |
| TRUNK-2 | - Trunk-2 Protocol |
| UCL | - University College London Protocol |
| UDP | - User Datagram Protocol |
| UNTP | - USENET News Transfer Protocol |
| USERS | - Active Users Protocol |
| UUCP-PATH | - UUCP Path Service |
| VIA-FTP | - VIA Systems-File Transfer Protocol |
| WB-EXPAK | - Wideband EXPAK |
| WB-MON | - Wideband Monitoring |
| XNET | - Cross Net Debugger |
| XNS-IDP | - Xerox NS IDP |

## OFFICIAL TERMINAL TYPE NAMES

These are the Official Terminal Type Names. Their use is described in RFC 930 [102]. The maximum length of a name is 40 characters.

ADDS-CONSUL-980
ADDS-REGENT-100
ADDS-REGENT-20
ADDS-REGENT-200
ADDS-REGENT-25
ADDS-REGENT-40
ADDS-REGENT-60
AMPEX-DIALOGUE-80
ANDERSON-JACOBSON-630
ANDERSON-JACOBSON-832
ANDERSON-JACOBSON-841
ANN-ARBOR-AMBASSADOR
ARDS
BITGRAPH
BUSSIPLEXER
CALCOMP-565
CDC-456
CDI-1030
CDI-1203
CLNZ
COMPUCOLOR-II
CONCEPT-100
CONCEPT-104
CONCEPT-108
DATA-100
DATA-GENERAL-6053
DATAGRAPHIX-132A
DATAMEDIA-1520
DATAMEDIA-1521
DATAMEDIA-2500
DATAMEDIA-3025
DATAMEDIA-3025A
DATAMEDIA-3045
DATAMEDIA-3045A
DATAMEDIA-DT80/1
DATAPOINT-2200
DATAPOINT-3000
DATAPOINT-3300
DATAPOINT-3360
DEC-DECWRITER-I
DEC-DECWRITER-II
DEC-GT40
DEC-GT40A

DEC-GT42
DEC-LA120
DEC-LA30
DEC-LA36
DEC-LA38
DEC-VT05
DEC-VT100
DEC-VT132
DEC-VT50
DEC-VT50H
DEC-VT52
DELTA-DATA-5000
DELTA-TELTERM-2
DIABLO-1620
DIABLO-1640
DIGILOG-333
DTC-300S
EDT-1200
EXECUPORT-4000
EXECUPORT-4080
GENERAL-TERMINAL-100A
GSI
HAZELTINE-1500
HAZELTINE-1510
HAZELTINE-1520
HAZELTINE-2000
HP-2621
HP-2621A
HP-2621P
HP-2626
HP-2626A
HP-2626P
HP-2640
HP-2640A
HP-2640B
HP-2645
HP-2645A
HP-2648
HP-2648A
HP-2649
HP-2649A
IBM-3101
IBM-3101-10
IBM-3275-2
IBM-3276-2
IBM-3276-3
IBM-3276-4
IBM-3277-2

IBM-3278-2
IBM-3278-3
IBM-3278-4
IBM-3278-5
IBM-3279-2
IBM-3279-3
IMLAC
INFOTON-100
INFOTONKAS
ISC-8001
LSI-ADM-3
LSI-ADM-31
LSI-ADM-3A
LSI-ADM-42
MEMOREX-1240
MICROBEE
MICROTERM-ACT-IV
MICROTERM-ACT-V
MICROTERM-MIME-1
MICROTERM-MIME-2
NETRONICS
NETWORK-VIRTUAL-TERMINAL
OMRON-8025AG
PERKIN-ELMER-1100
PERKIN-ELMER-1200
PERQ
PLASMA-PANEL
QUME-SPRINT-5
SOROC
SOROC-120
SOUTHWEST-TECHNICAL-PRODUCTS-CT82
SUPERBEE
SUPERBEE-III-M
TEC
TEKTRONIX-4010
TEKTRONIX-4012
TEKTRONIX-4013
TEKTRONIX-4014
TEKTRONIX-4023
TEKTRONIX-4024
TEKTRONIX-4025
TEKTRONIX-4027
TELERAY-1061
TELERAY-3700
TELERAY-3800
TELETEC-DATASCREEN
TELETERM-1030
TELETYPE-33

TELETYPE-35
TELETYPE-37
TELETYPE-38
TELETYPE-43
TELEVIDEO-912
TELEVIDEO-920
TELEVIDEO-920B
TELEVIDEO-920C
TELEVIDEO-950
TERMINET-1200
TERMINET-300
TI-700
TI-733
TI-735
TI-743
TI-745
TYCOM
UNIVAC-DCT-500
VIDEO-SYSTEMS-1200
VIDEO-SYSTEMS-5000
VISUAL-200
XEROX-1720
ZENITH-H19
ZENTEC-30

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# APPENDIX A

## Network Numbers

The network numbers in class A, B, and C network addresses are allocated among Research, Defense, Government (Non-Defense) and Commercial uses.

Class A (highest-order bit 0)

| | |
|---|---|
| Research allocation: | 8 |
| Defense allocation: | 24 |
| Government allocation: | 24 |
| Commercial allocation: | 94 |
| Reserved Addresses: (0, 127) | |
| Total | 128 |

Class B (highest-order bits 1-0)

| | |
|---|---|
| Research allocation: | 1024 |
| Defense allocation: | 3072 |
| Government allocation: | 3072 |
| Commercial allocation: | 12286 |
| Reserved Addresses: (0, 16383) | |
| Total | 16384 |

Class C (highest-order bits 1-1-0)

| | |
|---|---|
| Research allocation: | 65536 |
| Defense allocation: | 458725 |
| Government allocation: | 458725 |
| Commercial allocation: | 1572862 |
| Reserved Addresses: (0, 2097151) | |
| Total | 2097152 |

Class D (highest-order bits 1-1-1)

All addresses in this class are reserved for future use.

Within the Research community, network identifiers will only be granted to applicants who show evidence that they are acquiring standard Bolt Beranek and Newman gateway software or have implemented or are acquiring a gateway meeting the Exterior Gateway Protocol requirements. Acquisition of the Berkeley BSD 4.2 UNIX software might be considered evidence of the latter.

Experimental networks which later become operational need not be renumbered. Rather, the identifiers could be moved from Research to Defense, Government or Commercial status. Thus, network identifiers may change state among Research, Defense, Government and Commercial, but the number of identifiers allocated to each use must remain within the limits indicated above. To make possible this fluid assignment, the network identifier spaces are not allocated by simple partition, but rather by specific assignment.

Protocol Identifiers

These assignments are shared by the four communities.

Port Numbers

These assignments are shared by the four communities.

ARPANET Link Numbers

These assignments are shared by the four communities.

IP Version Numbers

These assignments are shared by the four communities.

TCP, IP and Telnet Option Identifiers

These assignments are shared by the four communities.

Implementation:

Joyce Reynolds is the coordinator for all number assignments.